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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,029	06/07/2006	Mark Edward Huntley	PCT-2006-1	1089
7590 11/12/2008 Martin E Hsia Cades Schutte A Limited Liability Law Partnership 1000 Bishop Street 12th Floor Honolulu, HI 96813			EXAMINER LILLING, HERBERT J	
			ART UNIT 1657	PAPER NUMBER
			MAIL DATE 11/12/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/582,029

**Applicant(s)**

HUNTLEY ET AL.

**Examiner**

HERBERT J. LILLING

**Art Unit**

1657

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on September 08, 2008 (IDS & Election).  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.  
4a) Of the above claim(s) 14-19 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-13 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☒ Claim(s) 14-19 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date 09-08-2008  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

1. Receipt is acknowledged of an election response and a prior art information disclosure statement filed September 08, 2008.

2. Claims 1-19 are pending in this application.

3. Applicant has elected without traverse Group I, claims 1-13.

Claims 14-19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on September 08, 2008.

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-13 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for specific microbes which according to page 16 line 31 to page 17 line 16.(v), does not reasonably provide enablement for other microbe. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and practice the invention commensurate in scope with these claims.

Claims 1-13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention with respect to the microbes because the

patent statute requires that the scope of the claims be sufficiently definite to inform the public of the bounds of the protected invention, i.e., what subject matter is covered by the exclusive rights of the patent. What are the properties which impart the specific capability of doubling in biomass since other species fail to provide this process condition without any guidance in the instant specification to select the appropriate microbes?

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention with respect to the scope of the microbes since a skilled artisan could not discern the boundaries of the claim based on the claim language and the specification as to the metes and bounds of those species within the scope of claimed "capable of doubling in mass" which species are vague and indefinite to meet the above requirements.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over  
Reith et al W0 01/74990.

**Reith et al teaches** the processes of cultivating photosynthetic microbes which includes the culturing on an industrial scale, cleaning flue gas and

"products can be used in nutrition and nutritional supplements, cosmetics and other "personal care" products and in clinical and pharmaceutical products. The remainder of the biomass can be designated as animal feed""

"Important taxonomic groups in the algae world include: green algae, red micro-algae, diatoms, dinoflagellates. Algae cultivation is an environmentally friendly and energetically efficient process for the production of organic material by photosynthesis **from carbon dioxide** and luminous energy.

In this process, use is made of gratis energy from sunlight, gratis carbon dioxide and water, which can be of low quality, including industrial process water, effluent of biological water treatment or other waste water streams. Products of algae cultivation include algal biomass and purified water which can be used, for example, as industrial water. If the carbon dioxide stems from flue gas, this algae 15 production also contributes to flue gas cleaning, not least because nitrogen compounds..";

which disclosure is within the scope of the claimed subject matter for employing micro-organisms and using carbon dioxide.

Reith indicates both a closed system and open system for the culturing and carrying out the processes with different systems of connecting the closed system with the open system employing various photosynthetic microorganisms as disclosed on page 6 first paragraph:

"The process and the system according to the invention ate suitable for any species or strain from the group of photosynthetic micro-organ/sins. This comprises photosynthetic bacteria and micro-algae from the order Cyanobacteria (formerly sometimes also referred to as algae order Cyanophyta), the order Chlorophyta (green algae), the order Chromophyta, the order Cryptophyta, the order Pyrrhophyta (dinoflagellates), the order Euglenophyta and the order Rhodophyta (red micro-algae). The Chromophyta, according to this classification, inter alia include the classes Bacillariophyceae (diatoms), Chrysophyceae (golden algae), Eustigmatophyceae and Xanthophyceae (yellow-green algae). According to older classifications, some of these classes form orders of their own (Bacillariophyta, Xanthophym and the like).

Examples are the culture of *Monodus* species (Eustimatophyceae) for the production of polyunsaturated fatty acids. To be mentioned among these is the species *Monodus subterraneus*, a freshwater species having an optimum culture temperature of about 25°C and an optimum growth rate (p) of about 0.04 h<sup>-1</sup>. Other examples are 15 species and strains from the micro-algae genera *Porphyridium* sp. (Rhodophyta) for the production of phycobiliproteins and *Chlorella* sp. (Chlorophyta) for the production of carotenoids and bioactive substances, and the cyanobacteria genera *Nostoc* sp., (for the production of phycobiliproteins) and *Calothrix* sp. (for phycobliproteins and by-products). “

The reference does not indicate that the micro is capable of doubling in biomass within approximately 16 hours or less but does teach the first step of culturing in a combination of a closed system with an open system, see Figure 2 and the control of the inoculation of the photosynthetic micro-organism from the closed to the open system see page 5 and Figure 1.

Applicant has not shown any patentable difference(s) over the art of record with respect to the requirements of the claimed limitations pertaining to (a) microbe having property of doubling and the percentage inoculation which does not appear to be any patentable difference absent a showing of unexpected results or process steps.

**Further in** light of the Supreme Court's recent decision in *KSR International Co. v. Teleflex Inc (TFX)* ., 82 USPQ2d 1385 (2007) based on the reasoning may still include the established Court of Appeals for the Federal Circuit standard that a claimed invention may be obvious if the examiner identifies a prior art teaching, suggestion, or motivation (TSM) to make it. However, the Guidelines explain that there is no requirement that patent examiners use the TSM approach in order to make a proper obviousness rejection. **Furthermore, the Guidelines point out that even if the TSM approach cannot be applied to a claimed invention that invention may still be found obvious.**

If there are any differences with respect to the claimed subject matter and the general knowledge pertaining to the art in the area, that these differences would have been prima facie obvious to one of ordinary skilled in the pertinent art whether it was based on the art of record or claimed subject would have obvious for the “combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results”; since the reference teaches various micro-organism for culturing algae having a high productivity and biomass by controlling the growth rate and flow from the closed to open systems which renders the instant claims obvious absent a showing of unexpected results.

7. **No Claim is allowed.**

8. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HERBERT J. LILLING whose telephone number is 571-272-0918. The examiner can normally be reached on WORK AT HOME MAXIFLEX.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JON WEBER can be reached on 571-272-0925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

H.J.Lilling: HJL

(571) 272-0918

Art Unit **1657**

November 06, 2008

/HERBERT J LILLING/  
Primary Examiner Art Unit 1657